

## COMBINED PMB AND EMULSION PILOT PLANT

This combined research plant can produce the PMB bitumen and thereafter produce the polymer emulsion all in same unit

### Bitumen emulsion functional principle:

- The bitumen emulsion pilot plant for use in laboratories is a handy compact unit build to comply with demands for developing of bitumen emulsion formulations.
- The plant is constructed with stainless steel chassis and covered with stainless steel plates, with 30 mm insulating material to prevent noise from motors, mill and pumps. The laboratory mill is designed to give good access for maintenance and cleaning.
- The plant is designed with a HMI/touchscreen for easy and full automatic operation of the unit. All set points are calculated automatically according to the defined formulation. Flows are controlled automatically by PID loops to maintain high accuracy of the production. All production valves are recorded and stored for traceability.

### PMB functional principle:

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- When a batch shall be produced, the required amount of bitumen is entered into the bitumen tank; the bitumen can be circulated by using the bitumen transfer pump to ensure an even temperature in the tank. If fluxing oil or other additives is required for the formulation these can be blended into the bitumen in the tank. The bitumen is heated by electrical heating elements.
- The polymer will be dosed into the tank and will be blended into the bitumen by means of the agitator in the tank.
- The product can then be run through the grinding mill.
- The batch principle mix will be emptied out to the sample container using the bitumen transfer pump circulated back to tank.



### 1.0 MILL UNIT.

- Emulsion grinding mill, capacity of 200 to 500 l/hr.
- House, stator and rotor in ANSI 316stainless steel, double lip seal shaft sealing with greasing.
- Ball bearings for shaft and rotor running in oil bath, electrical heating element.
- Motor 2800 rpm 3 KW.
- Sensor PT100 for emulsion temperature with display indication on HMI.
- Adjustable pressure valve on emulsion output pipe.

### 2.0 BITUMEN LINE.

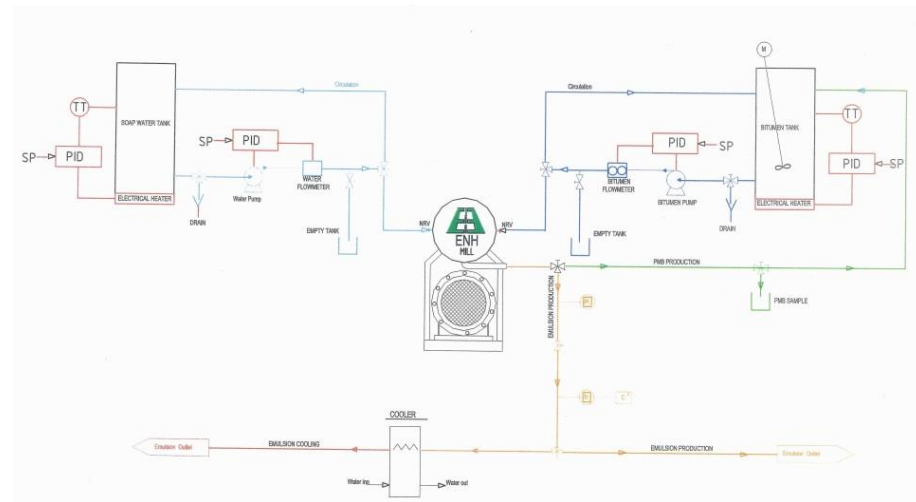
- Bitumen tank 22 litres with 30 mm insulating, heating element temp. sensor pt 100, PID controller with temperature indication in control board.
- Bitumen pump, 20-300 kg/h with 2 bar and max. 200 deg C. cast steel internal relief valve, coupling and guard, speed control with variable frequency motor 900 RPM 0,25 KW.
- *Bitumen flow meter 20 – 300 kg/h*
- Positive displacement type in steel. Adjustable pressure valve from 0-2 bar.
- 3 way valve for possible connection from separated booster tank.
- 3 way valve for circulating of bitumen. PID controller for automatic flow rate.

### 3.0 SOAP LINE

- Soap water tank 22 litre, heating element temp. sensor PT 100
- PID controller with temperature indication on HMI.
- Soap water pump, 20-300 l/hr with internal relief valve.
- Speed control with variable frequency motor 900 RPM 0,25 KW.
- *Soap water flow meter 20-300 l/hr* magnetic type to suite low acid duty.
- Adjustable pressure valve from 0-2 bar.
- 3 way valve for possible connection from separated booster tank. 3 way valve for circulating of soap solution. PID controller for automatic flow rate.

### 4.0 ELECTRICAL SUPPLY

- Main supply 3 phase 380 v 15 amp.
- Plant is ready for connection when delivered



PI&D Diagram

# Lab-mill front

